

NIKITIN, M. D. 3

ACCESSION NR: AT4042646

S/0000/63/000/000/0023/0026

AUTHOR: Antipov, V. V.; Vy'sotskiy, V. G.; Davy'dov, B. I.; Dobrov, N. N.;
Morozov, V. S.; Murin, G. F.; Nikitin, M. D.; Saksonov, P. P.

TITLE: Some problems in providing radiation safety in space flight

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963.
Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy
konferentsii. Moscow, 1963, 23-26

TOPIC TAGS: radiation safety, space flight, spaceflight factors, cosmic radiation
effect, vibration, acceleration, radiation protection, dosimetric control, bio-
logical dosimeter, solar flare, antiradiation drug/RBE

ABSTRACT: Although protons are an important component of primary cosmic radiation,
experimental data on their biological action under space conditions and their
RBE compared with x-rays and gamma-rays are lacking. It has been established that
the RBE of protons with energies in excess of 100 Mev (LD₅₀ for rodents) is a
little less than one. However, the data on which this figure is based were obtain-
ed with various particle accelerators of high-dose power and pulsed radiation.

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conditions not found in space. The RBE of alpha-particles and high-energy nuclei of the heavier elements has been estimated as lying between 2 and 10. Laboratory verification with animals is unfortunately impossible, since sufficiently powerful accelerators do not exist. The combined effect of radiation and other space-flight factors (vibration, acceleration, modified atmosphere, etc.) is another important area where few experimental data are available. It is necessary to know in what ways and to what extent cosmic radiation contributes to the total effect of space flight on the human body, and what is the qualitative and quantitative influence of other space-flight factors on the biological effect of radiation, in order to formulate scientifically-based antiradiation drugs and safety measures. Experiments have shown that the development of radiation damage is modified by acceleration and vibration, the effect depending on when and in what sequence these factors occur. Animals subjected to vibration and acceleration 5 to 7 days after irradiation showed a poorer tolerance to these factors than nonirradiated animals. In addition, the vibration and acceleration aggravated the course of the radiation sickness. Vibration and acceleration prior to irradiation not only failed to aggravate radiation sickness, but even somewhat abated its severity. Without experimental data on RBE and the combined effects of spaceflight factors, permissible levels of radiation cannot be scientifically established. A conditional

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permissible dose of 25 ber (biological equivalent roentgen) has been set, but is subject to revision upward or downward as actual data on the effect of various cosmic radiation components and the effectiveness of antiradiation measures are accumulated. The ideal type of radiation protection would be mechanical shielding (i. e., an actual screen of lead or some other material) but this is technologically impossible at present. The majority of chemical antiradiation agents cannot be used under space-flight conditions. Since radiation effects are not confined to humans, not only the crew members but the whole spaceship biocomplex (plants, animals on board, etc.) must be protected lest the equilibrium of the closed ecology be upset by hereditary or other effects. Basic elements of a radiation safety system for spacecraft will be: 1) dependable dosimetric control of the radiation level in the spaceship cabin by means of ship, individual, and biological dosimeters; 2) scientific forecasting of radiation conditions in space, especially solar chromospheric flares; and 3) effective pharmacological and biological agents for protection against the harmful effects of cosmic radiation.

ASSOCIATION: none

SUBMITTED 27 SEP 63

Card 3/4

ANTIPOV, V.V.; YEFREMOV, Yu.I.; NIKITIN, M.D.; SAVENKO, I.A.; SAKSONOV, P.P.

Safety measures against radiation during flights of the spaceships
"Vostok-3" and "Vostok-4". Kosm. issl. 1 no.2:303-308 S-0
'63. (MIRA 17:4)

LEBEDEV, V.N.; MOROZOV, V.S.; MURIN, G.F.; NIKITIN, M.D.; SALATSKAYA, M.I.

Cosmic radiation doses in biocameras of the spaceships "Vostok-3"
and "Vostok-4". Kosm. issl. 1 no.2:309-311 S-0 '63.
(MIRA 17:4)

ANTIPOV, V. V.; VYSOTSKIY, V. G.; DAVYDOV, B. I.; DOBROV, N. N.; MOROZOV, V. S.; MURIN, G. F.;
NIKITIN, M. D.; SAKSONOV, P. P.

"Some problems in providing radiation safety in space flight."

report presented at the 5th Intl Space Science Symp, Florence, 12-16 May 64.

VOLYNKIN, Yu. M.; ANTIPOV, V. V.; GUDA, V. A.; NIKITIN, M. D.; SAKSONOV, P. P.

"The biological evaluation of radiation conditions on the path between the earth and the moon."

report presented at the 15th Intl Astronautical Cong, Warsaw, 7-12 Sep 64.

FCG/EEC-4/EEC(t)/EWG(a)-2/EWG(c)/EWA(h) Pe-5/Pi-4/Po-4/Pq-4/Pac-4/Pae-2/Peb
TT/DD/ENS/RE/GW

ACCESSION NR: AP5011557

UR/0026/65/000/004/0046/0053

91
B

AUTHOR: Antipov, V. V. (Candidate of medical sciences); Nikitin, M. D.; Saksonov, P. P. (Doctor of medical sciences)

TITLE: Biological evaluation of the radiation hazard during manned lunar flights

SOURCE: Priroda, no. 4, 1965, 46-53

TOPIC TAGS: manned space flight, radiation biologic effect, radiation protection, solar flare, space radiation, cosmic ray, space radiation hazard, space medicine, radiation belt

ABSTRACT: Since it is likely that the Moon will be the first celestial body to be visited by manned space probes, the problem of the radiation hazard in the Earth-Moon trajectory is of great importance. In this connection, the physical parameters of the natural and artificial radiation belts of the Earth and of solar flare radiation are enumerated.

In a discussion of the radiobiological effects of cosmic radiation, it is stated that when a cosmonaut protected with 3 g/cm^2 is exposed to radiation from a large solar flare, the dose absorbed will range from tens to

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several hundred rads. Under terrestrial conditions, a 25-rem dose strongly affects the hematological and central nervous systems of man, 100 rem evoke nausea, increased fatigability, and other symptoms which generally lower working capacity, 200 rem produce symptoms of severe radiation sickness in 50% of the cases, and 300 rem are fatal.

It is likely that space-flight factors alter the reaction of the organism to the effects of ionizing radiation although it is difficult to determine the exact mechanisms of this phenomenon. A radiobiological effect depends basically on the integral absorbed dose, the type of radiation, the magnitude and duration of dose, and whether the organism has been partially or totally irradiated. The functional condition of the organism also determines its resistance to radiation. The relative biological effectiveness (RBE) of protons has been found to be around 1.5. However, when cosmonauts are exposed to radiation from solar flares, a significant component of the dose will be made up of neutrons whose RBE is no less than 2.0.

The fact that space-flight factors complicate the reaction of the organism to irradiation makes it more difficult to determine permissible dose values. In addition, the likelihood that cosmonauts on a one-week lunar flight will be exposed to radiation from solar flares is high. For in-

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stance, there is a 16% chance of exposure to radiation from a flare of the type observed on 22 August 1958, a 5.8% chance of exposure to a flare like that of 10 May 1959, and a 0.3% chance of exposure to a flare like that of 23 February 1958. These flares occurred during a period of increased solar activity.

In calculating the integral dose from primary cosmic radiation and from radiation from the natural and artificial belts around the Earth, it is anticipated that a value of 10 rem would not be exceeded in a two-week flight during a quiet-sun period if cosmonauts were protected with $1-2 \text{ g/cm}^2$. This value would have to be increased to 3 g/cm^2 to lower the dose to 25 rem from protons from a flare similar to the one on 22 August 1958. It would be virtually impossible to achieve physical protection from flares of the type which occurred on 10 July 1959 and 23 February 1956.

Two methods exist for decreasing the radiation hazard from protons. The first method involves the forecasting of solar flares, which at the present time can be achieved with up to 75% accuracy for 2-3 days ahead. Since this is not a long period of time, the problem of forecasting flare activity must be examined more thoroughly in terms of developing hardware for this

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purpose which can be used both on Earth and in the spacecraft. The second method is to increase the resistance of the organism to the effects of radiation by means of different medical preparations. Successful experiments in this field have increased hopes that the medical protection of cosmonauts from ionizing radiation will be one of the prime factors in a radiation safety system. Orig. art. has 2 tables, 1 graph, and 4 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: AA, IS

NO REF SOV: 001

OTHER: 000

ATD PRESS: 1004-F

Card 4/4

L 23976-66 ENT(1)/ENT(m)/FCC/EWA(h) SCTB DD/RD/GW

ACC NR: AT6003847

SOURCE CODE: UR/2865/65/004/000/0119/0126

AUTHOR: Saksonov, P. P.; Antipov, V. V.; Dobrov, N. N.; Shashkov, V. S.;
Kozlov, V. A.; Perashin, V. S.; Davydov, B. I.; Razgovorov, B. L.;
Morozov, V. S.; Nikitin, M. D.

ORG: none

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B+1

TITLE: Perspectives of pharmacochemical ²¹ protection from radioactive damage during cosmic flights

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 119-126

TOPIC TAGS: astronaut, space medicine, radiation biologic effect, antiradiation drug, biologic acceleration effect, mouse, experiment animal, space physiology, closed ecology system, space flight

ABSTRACT: The authors consider cosmic radiation a real danger for astronauts, particularly during long flights. The work is a survey on existing radioprotectors and a general discussion of biologic conditions in cosmic flight, future research, and requirements for radioprotectors. The present chemical compounds, Mercamine HCL, its salicylate and disulfide, and AET appear sufficiently effective for clinical use against

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2

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ACC NR: AT6003847

X or gamma rays. Laboratory tests on mice showed that some compounds of the aminothiols series (cystamine, cysteamine, serotonin, AET) exerted significant protective effect in proton irradiation of 600 and 120 Mev. In the search for radioprotectors, other factors affecting the astronaut must also be taken into account, such as weightlessness, vibration, acceleration and changes in pressure. Tests on laboratory animals subjected to such conditions prior to irradiation showed no effect on radiation sickness, but vibration after irradiation was apt to prolong the sickness. Some of the radioprotectors tested in mice and dogs had an adverse effect on stability of the organism under vibration and acceleration. The authors call for studies to establish a stable ecologic system in the cabin which can accompany the astronaut on long trips, for models simulating cosmic flight conditions particularly in regard to radiation dose, and for radioprotective compounds to be compatible with all these conditions. Orig. art. has: none.

SUB CODE: 06, 22/ SUBM DATE: none/ ORIG REF: 040/ OTH REF: 028

Card 2/2 H

24370-66 FSS-2/ENT(1)/ENT(m)/EEC(k)-2/FCC/ENA(h) SCTB TT/DD/GA 1c
 ACC NR: AT6003848 SOURCE CODE: UR/2865/65/004/000/0127/0138 77
 AUTHOR: Volynkin, Yu. M; Antipov, V. V.; Guda, V. A.; Nikitin, M. D.; Saksonov, P. P. 64
 ORG: Department of Biological Sciences, Academy of Sciences USSR (AN SSSR. Otdeleniye biologicheskikh nauk)
 TITLE: Biological evaluation of radiation conditions for earth to moon flight 12 2
 SOURCE: AN SSSR. Otkeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 127-138
 TOPIC TAGS: bioastronautics, space radiation, solar flare, irradiation dosimetry, radiation shielding
 ABSTRACT: The physical characteristics and maximum permissible biological doses of the basic types of cosmic radiation are considered. Radiation doses for primary cosmic radiation from natural and artificial belts with a radiation shield of 1 to 2 g/cm² should not exceed 10 rem for a two week flight around the moon. In case of an emergency return from an altitude of 75,000 km by the least favorable trajectory, the maximum dose would probably be about 20 rem and a radiation shield of 1 to 2 g/cm² would still provide adequate radiation protection for crew
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L 24370-66

ACC NR: AT6003848

members. Proton radiation of solar flares represents a real threat to the health and lives of astronauts. To protect astronauts from solar flares of the type witnessed Aug. 22, 1959, the radiation shield may be increased to 3 g/cm^2 . However, the problem of protection against solar flares of the type witnessed July 10, 1959 and February 23, 1956 cannot be solved technically at this time. The safety of the astronaut can also be increased with the use of solar flare forecasts. Present forecasting methods predict the appearance of solar flares 2 to 3 days in advance with 75% accuracy. Improved forecasting methods should be accompanied by the development of new types of forecasting instruments. Increasing body resistance to proton radiation of solar flares with the use of various pharmaceutical chemical preparations appears promising. Orig. art. has: 2 tables.

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 021/ OTH REF: 020

Card 2/2

L 03775-67 FSS-2/EWT(1)/EWT(m)/EEC(k)-2/FCC SCTB IT/DD/RD/CW

ACC NR: AP6028342

SOURCE CODE: UR/0293/66/004/004/0630/0633

AUTHOR: Volynkin, Yu. M.; Antipov, V. V.; Davydov, B. I.; Dobrov, N. N.;
Nikitin, M. D.; Pisarenko, N. F.; Saksonov, P. P.

ORG: none

TITLE: Assurance of radiation safety during the Voskhod-1 and Voskhod-2 flights

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 4, 1966, 630-633

TOPIC TAGS: space radiation, ~~radiation safety~~ *spacecraft*, solar flare, ~~radiation~~ *spacecraft*, radiation shielding, radiation dosimetry, nuclear emulsion, radiation ~~sensor~~ *spacecraft*, EVA, lysogenic bacteria/Voskhod-1, Voskhod-2 *spacecraft*

ABSTRACT: The Voskhod-1 and Voskhod-2 flights were characterized by extremely high orbits (apogee 495 km). It was calculated that Voskhod-2 would have a far higher radiation exposure due largely to the proton component in the area of the Brazilian anomaly, where in the course of 20 min the spaceship would acquire about 80% of the daily dose. The extravehicular surface dose of electrons during 20 min could amount to 1 rad. In order to reduce this to zero a protective layer of 100 mg/cm² is required. Leonov's spacesuit fulfilled this shielding requirement. Since exposure to radiation may reach dangerous proportions during solar flares the following radiation protection measures were taken during the Voskhod-1 and Voskhod-2 flights. A preliminary study was made of radiation conditions on the proposed orbit. Forecasts

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UDC: 614.876(202)

L 03775-67

ACC NR: AP6028342

of the possibility of solar flares were made. The radiation dose was reduced by spacecraft shielding. Changes in the level of radiation in the upper atmosphere were checked by means of balloon sondes. Integral doses and dose rates were measured by on-board radiation meters. Individual dosimeters of the ILK, IKS, and IFKN types and nuclear emulsions were used to measure the total doses acquired by each cosmonaut. Living organisms were carried on board as biodosimeters. Radioprotective drugs were carried for emergency use by the cosmonauts. In order to determine the effect of low-energy electrons during Leonov's EVA the two cosmonauts carried identical sets of dosimeters (on the chest under the spacesuit and in external hip pockets), which were capable of working in high-vacuum conditions. However, Leonov's dose did not exceed Belyayev's. Individual and on-board dosimeters indicated that the total dose received on Voskhod-2 was 70 ± 5 mrad, while that on Voskhod-1 was 30 ± 5 mrad. Analysis of the spectral composition of radiation made by nuclear emulsions indicated the presence of particles with linear energy losses comparable to ions of He, B, O, and Ar. The radiation dose, taking RBE into account, did not exceed several dozen ber. Biological objects carried on Voskhod-1 and Voskhod-2 showed increases in non-disjunction of chromosomes and increases in frequency of dominant lethal mutations in *Drosophila*, and disruption of the mitotic mechanism in microspores of *Tradescantia*; these increases, however, were small. Lysogenic bacteria carried on the two Voskhod flights did not show any effect of radiation or other spaceflight factors. Experiments performed by B. B. Yegorov have indicated that various stages of mitosis in *Tradescantia* microspores possess varying sensitivity to the effects of spaceflight factors. These findings confirmed Yegorov's hypothesis that the chief cause of

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ACC NR: AP6028342

disruption of the mitotic mechanism is weightlessness and that chromosome reconstructions are due largely to combined factors related to spaceflight takeoff and reentry. Orig. art. has: 2 tables. [BM]

SUB CODE: 06/ SUBM DATE: 21Aug66/ ORIG REF: 006/ ATD PRESS: 5064

Card 313

NIKITIN, M. E.

USSR/Metallurgy - Casting, Steel
Bearings

Page 1

"Use of Permanent Molds for Casting Lead Bronze Bearings," I. Ye. Melvinov, I. I. Nikitin, 2¹ pp

"Energet Byul" No 5

Plants making steel-lead bronze bearings usually employ molds of 0.3-0.6mm sheet iron, which serve only for one casting. Work on permanent molds was begun by the Sci Res Diesel Inst in 1939, at request of the "Kurskiy Tsel" Plant, and resulted in production of cast-iron mold. Describe manufacture of mold made of 1% chromium steel.

PA 161T93

ANDREYEVSKIY, M.A.; BARANOV, S.M.; VANSHEYDT, V.A., professor, doktor
tekhnicheskikh nauk; VELIKSON, D.M.; ZENDLER, L.V.; IVANCHENKO, N.N.;
ISTOMIN, P.A.; KATS, A.M. [deceased]; KOLLEROV, L.K.; LEVIN, M.I.;
~~NIKOLIN, M.D.~~ ROZHDESTVENSKIY, V.V.; GOFMAN, Ye.K., redaktor izda-
tel'stva; POL'SKAYA, R.G., tekhnicheskiiy redaktor

[Diesel engines; a handbook for designers] Dizeli; soderzhanie i posobie
konstruktora. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-
ry, 1957. 442 p. (MLR- 10:10)

(Diesel engines)

NIKITIN, M.D., inzh.

Effect of the height of the piston ring on wear. Energomashinostroenie
4 no.2:34-35 F '58. (MIRA 11:4)

(Piston rings)

[illegible]

Sponsoring Agencies: USSR. Glavnoye upravleniye po ispol'zovaniyu atomnoy energii, and Akademiya nauk SSSR.

Editorial Board of Set: V.I. Dikushin, Academician (Resp. Ed.), N. M. Smullovskiy (Deputy Resp. Ed.), Yu. S. Zaslavskiy (Deputy Resp. Ed.), L.K. Tatchenko, B.I. Verkhovsky, S.F. Nazarov, M.I. Pitrin and N.O. Zaslavskaya (Secretary).

Ed. of Publishing House: P.M. Delyanin; Tech. Ed.: T.F. Polenova.

CONTENTS. This collection of papers covers a very wide field of the utilization of tracer methods in industrial research and control techniques. The topic of this volume is the use of radioisotopes in the chemical and instrument-manufacturing industry. The individual papers discuss the applications of radioisotope techniques in the study of metals and alloys, problems of friction and lubrication, metal cutting, and to a somewhat lesser extent, in metallurgy. Several papers are devoted to the use of radioisotopes in the automation of industrial processes, recording, measurement, analysis, quality control, flowmeters, level gauges, safety devices, radiation counters, etc. These papers represent contributions of various Soviet Institutes and Laboratories. They were published as Transactions of the All-Union Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science, April 4-12, 1957. No personalities are mentioned. References are given at the end of most of the papers.

1. I. I. Kuznetsov, M.P. (Central'ny nauchno-issledovatel'skiy dizel'nyy institut - DIZEL) Research Institute). Effect of the Number of Re-
volutions and Maximum Cycle Pressure on the Wear of Upper Piston
Rings and Cylinder Sleeve in Diesels

Isanovich, A. I. (Mashinno-isledovatel'skiy traktorny institut -
Tractor Research Institute). Study of the Effect of Dust on the
Wear of Parts of Tractor Engines

malakozhuk, Yu. A. O. I. Shor, and I. A. Morozova (VNIIPo paravostochnykh i gaznykh polucheniya i khraneniya) Zhukovskiy, 1966, No. 1, p. 10. Union Scientific Research Institute for the Processing of Petroleum and Gas and the Production of Synthetic Liquid Fuel).
reduction of the Low-temperature Wear of Cylinder-Piston Units in Engines by the Use of Oil Additives

aiskiy, T.S., S.M. Kozm, R.M. Zhnerova, and G.I. Shor
Vil po perebotu nfti i gasi i polucheniya kachestvenno
zhilogo teplovta - All-Union Scientific Research Institute for
the Processing of Petroleum and Gas and the Production of Synthetic
Liquid Fuel, Study of the Mechanisms of the Action of Anticor-
rosive Oil Additives

Shchegolev, M.M., O.V. Vinogradov, K.A. Razuvaevskaya, E.I. Buntin, and V. V. Yarovaya (Institut nartil AN SSSR - Petroleum Institute, Academy of Sciences, USSR). Study of the Mechanism of the Interaction of Oil Additives with Metals

Induits, Ya.Ya. (Vsesoyuzny nauchno-issledovatel'skiy ucheb'nyy institut - All-Union Mining Research Institute). Study of the
 of Oears in Mining Machinery

TIMOFEYEVA, Vera Ivanovna; NIKITIN, Mikhail Dmitriyavich; FEDOROV, Sergey Fedorovich; BARANOV, I.A., inzh., red.; SHILLING, V.A., red. izd-va; GVIRTS, V.L., tekhn. red.

[Manufacturing unit-cast turbine runners by the method of precision investment molding with centrifugal pouring] Opyt izgotovleniia tsel'nolitnykh koles turbin metodom lit'ia po vyplavliaemym modeliam s tsentrobezhnoi zalivkoi. Leningrad, 1961. 14 p. (Leningradskii Dom nauchno-tekhnicheskoi propagandy . Obmen peredovym opytom. Seriia: Liteinoe proizvodstvo, no.3) (MIRA 14:7)
(Precision casting)

NUSIMOVICH, Georgiy Yakovlevich; NIKITIN, Mikhail Dmitriyevich; FEDOROV, Sergey Fedorovich; SLITSKAYA, I.M., inzh., red.; SHILLING, V.A., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[Centrifugal casting of supercharger wheels] TSentrobezhnoe lit'e koles magnetatelei. Leningrad, 1961. 17 p. (Leningradskii Dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriya: Liteinoe proizvodstvo, no.1) (MIRA 14:7)
(Centrifugal casting)

NIKITIN, M.I., 1928.

Increase of the economic efficiency of the enterprise.

Energomashinostroyeniye 9 no. 1144-46 M.I.S. (MIRA 1978).

BALAKIN, V.I., red.; IVANCHENKO, N.N., red.; KOLLEROV, L.K.,
red.; LEVIN, M.I., red.; NIKITIN, M.D., red.

[Internal combustion engines; collection of papers dedicated
to the memory of Professor Liudvig Karlovich Martens, Doctor
of Technology] Dvigateli vnutrennego sgoraniia; sbornik rabot
posviashchennyi pamiati doktora tekhnicheskikh nauk, profes-
sora Liudviga Karlovicha Martensa. Moskva, Mashinostroenie,
1965. 454 p. (MIRA 18:4)

MIKITIN, M.F.
AKB

SOIL TEMPERATURE

3.5-206

551.525.4:551.501.4:551.501.6

Mikitin, M.F., "Metodika prosmotra nabliudenii nad temperaturai pochvy na mal'kh glubinakh. (A method of checking soil temperature observations at small depths.) Leningrad, Glavnaia Geofizicheskaya Observatoriia, Trudy, No. 25(87):88-92, 1951. 5 figs., 2 tables. DLC- The author presents a method of analysis for detecting observational errors in soil temperature readings in working up meteorological observations and in the preparation of yearbooks. This method involves the construction of decadal thermographs of the soil, writing out temperature gradients by depths and differences of soil temperature between periods of observation, and the construction of charts with gradients of maximum and minimum soil temperatures. Subject Headings: 1. Soil temperatures 2. Observational errors 3. Graphical presentation. -I.L.D.

NIKITIN, M. G.

NIKITIN, M. G. (Post-Graduate Student, Department of Epizootiology, Khar'kov Veterinary Institute.) On virus-discharge in Aujeszky's disease of pigs.

So: Ve'serinariya; 23; 7; July 1946; Incl.

TABCON

NIKITIN, M. G.

ARTYUKH, I. A. and NIKITIN, M. G. (Ukrainian Institute of Experimental Veterinary Medicine.) On the distribution of the virus of Aujeszky's disease in the organism of pigs and its resistance in meat and organs.

So: Veterinariya; 23; (12); December 1946; Uncl.
TABCON

NIKITIN, M. G.

1. A. 1. 1. 1.

USSR/Medicine - Pseudorabies
Medicine - Diseases, Transmission

Jun 59

"Transmission of Virus of Anjeszky's Disease in Pigs
Through Milk," M. G. Nikitin, Aspirant, Chair
Epizootiol, Khar'kov Vet Inst, 3/4 p

"Veterinariya" No 6

Describes experiments which prove that subject
disease is transmitted from sow to piglets via milk.

31/49T68

NIKITIN, M. G.

36803. LUKASHOV, I. I. i NIKITIN, M. G. Enzootiya Bolesni Aueski Sredi Ovets
i Rogatogo Skota. Veterinaya, 1949, No.12, c. 15-17

SO: Letopis' Zhurnal'nykh Statey, Vol. 50, Moskva, 1949

NIKITIN, M.G., dotsent.

Data on swine as carriers of the virus of Aujeszky's disease.
Sbor.trud.Khar'.vet.inst. 20:101:117 '49. (MLRA 9:11)
(Pseudorabies) (Swine--Diseases)

LUKASHOV, I.I., professor, doktor, zasluzhennyy deyatel' nauk Ukrainskoy
SSR ; MIKITIN, M.G., dotsent.

Vaccination against Aujeszky's disease. Sbor.trud.Khar'.vet.inst.
21:242-244 '52. (MLBA 9:12)

1. Kafedra epizootologii Khar'kovskogo veterinarnogo instituta.
(Pseudorabies) (Swine--Diseases and pests)

NIKITIN, M. G.

6860. Nikitin, M. G. Beshenstvo i bor'ba s nim. khar'kov, kn.-gaz. izd., 1954. 14 s. 20 sm. (Khar'k. obl. upr. sel'skogo Khozyaystva). 2.000 ekz. Bessl. --Vuyv. Dan. zayl: beshenstvo i mery bor'by a nim. -- Na ukr. yaz. (55-1643) 619:616.953 i 616. 953

SO: Knizhnaya Letopis' No. 6, 1955

NIKITIN, M.G.

NIKITIN, M.G., dotsent; LEBEDEV, V.I., assistant.

Field study on the action of tuberculin prepared on a synthetic culture medium. Sbor. trud. Khar'. vet. inst. 22:259-267 '54.

(MLRA 9:12)

1. Kafedra epizootologii Khar'kovskogo veterinarnogo instituta.
(Bacteriology--Cultures and culture media)
(Tuberculin)

NIKITIN, M.G., dotsent, kandidat veterinarnykh nauk.

Some peculiarities of the clinical aspects and epizootology of
Anjesky's disease in swine. Sbor. trud. Khar'. vet. inst. 22:268-276
'54. (MLRA 9:12)

1. Kafedra epizootologii Khar'kovskogo veterinarnogo instituta.
(Pseudorabies) (Swine--Diseases)

NIKITIN, Mikhail Grigor'yevich

[Rabies in domestic animals] Skaz sel's'kohospodarskykh tvaryn.
Kyiv, Derzh. vyd-vo sel's'kohospodarskoi lit-ry URSR, 1956. 53 p.
(Rabies) (MIRA 10:4)

NIKITIN, M.G., dotsent

Role of gray rats in the spreading of Aujeszky's disease.
Veterinariia 36 no.6:44-45 Jan '59. (MIA 12:10)

1. Khar'kovskiy veterinarnyy institut.
(Pseudorabies) (Rats as carriers of disease)

LUKASHEV, I.I., prof.; NIKITINA, V.S., kand. veterinarnykh nauk; NIKITIN, M.G.,
kand. veterinarnykh nauk

Prophylactic and therapeutic action of gamma globulin in Aujeszky's
disease. Veterinariia 36 no.9:24-26 S '59. (MIRA 12:12)

1.Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh
nauk imeni V.I. Lenina (for Lukashev). 2.Khar'kovskiy veterinarnyy
institut (for Nikitina, Nikitin).
(Pseudorabies) (Gamma globulin)

NIKITIN, M.G., kand.veterinarnykh nauk, dotsent

Neural form of Aujeszky's disease in adult swine. Veterinariia 37
no.8:41-42 Ag '60. (MIRA 15:4)

1. Khar'kovskiy veterinarnyy institut.
(Ukraine---Pseudorabies) (Swine---Diseases and pests)

NIKITIN, M.G.

Norway rat as a carrier and disseminator of the virus of Anjesky's
disease. Zool.zhur. 39 no.2:282-287 F '60.
(MIRA 13:6)

1. Chair of Epizootology, Kharkov Veterinary Institute.
(Ukraine--Pseudorabies) (Rats as carriers of disease)
(Swine--Diseases and pests)

NIKITIN, M. G., (Assistant Professor of the Khar'kov Veterinary Institute)

The role of swine convalescent from a natural infection of the
Aujeszky disease in its epizootiology.

Veterinariya vol. 38, no. 9, September 1961, pp. 39.

LUKASHEV, I. I. (Corresponding Member of VASKHNIL, Honored Scientist of the Ukrainian SSR) and NIKITIN, M. G. (Assistant Professor, Khar'kov Zooveterinary Institute)

"Gamma globulin in Aujeszky's disease of cattle"
Veterinariya, vol. 39, no. 6, June 1962 pp. 29

NIKITIN, M.G., dotsent

Role of swine after a natural infection with Aujeszky's
disease in its epizootiology. Veterinariia 38 no.9:32-36
S '61. (MIRA 16:8)

1. Khar'kovskiy veterinarnyy institut.

LUKASHEV, I.I., zasluzhennyy deyatel' nauki UkrSSR; NIKITIN, M.G., dotsent

Gamma globulin in treating Aujeszky's disease in cattle.
Veterinariia 39 no.6:29-30 Je '62 (MIRA 18:1)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni Lenina (for Lukashev). 2. Khar'kovskiy zooveterinarnyy institut (for Nikitin).

NIKITIN, M. K.

Experience of railroads in the field of capital restoration of small bridges and pites
Moskva, Gos. transp. zhel-dor. izd-vo, 1952. 41 p. (53-15515)

TG445.N54

NIKITIN, M.K., kandidat tekhnicheskikh nauk, dotsent.

Strain in bridge supports on high pilework subjected to horizontal forces. Sbor.LIIZHT no.150:86-102 '56. (MLRA 9:11)
(Piling (Civil engineering)) (Bridge construction)

PROTASOV, Konstantin Georgiyevich; TEPLITSKIY, Aleksandr Vladimirovich;
KRAMAREV, Sergey Yakovlevich; NIKITIN, Matiglay Konstantinovich;
ZELEVICH, P.M., inzhener, redaktor; KHITROV, P.A., tekhn.red.

[Metal bridges; construction and design] Metallicheskie mosty;
konstruktsii i proektirovanie. Moskva, Gos.transp.zhel-dor.izd-vo,
1957. 456 p. (MIRA 10:12)

(Bridges, Iron and steel)

24 (5)

AUTHORS: Baranovskiy, V. I., Larionov, O. V., SOV/54-59-2-4/24
Nikitin, M. K., Tkachenko, A. A.

TITLE: On the Problem of Natural Neutron Activity of Arsenic and Antimony (K voprosu o yestestvennoy neytronnoy aktivnosti mysh'yaka i sur'my)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1959, Nr 2, pp 25-26 (USSR)

ABSTRACT: In the papers by A. Dorabialska and M. Serwinski (Refs 1-3), it had been asserted that ordinary arsenic and antimony are sources of quick neutrons. By means of these neutrons, the authors had succeeded in activating Cu, Br, J and other elements. They set up a conversion scheme which, however, disagrees with the experimental mass determinations of the elements occurring in this scheme; even the inverse reactions had been observed in experiments. In order to prove that no neutrons are radiated from the said elements under natural conditions, the same experiments as described in the papers (Refs 1-3) were repeated in this paper. The exposition of the materials to be activated was carried out both by direct contact of As and Sb of high purity with activated materials,

Card 1/2

On the Problem of Natural Neutron Activity of
Arsenic and Antimony

SOV/54-59-2-1/24

and with the use of moderators. All investigations proceeded with a negative result. Under experimental conditions as they were used in this investigation, a neutron decay of the As- and Sb-nuclei could have been detected only at a half-life period of $T_{\frac{1}{2}} \leq 10^{16}$ a. For the self-activation of

the said nuclei, the background of the neutron capturing cross section should have been increased which has not been detected either. β -particles from a β -decay with energies > 0.05 Mev were missing. In all results obtained, the authors could not find a foundation for the assertion of a possible independent neutron decay in the As- and Sb-nuclei. Finally, the authors thank V. D. Nefedov for the discussions. There are 6 references, 1 of which is Soviet.

SUBMITTED: June 14, 1958

Card 2/2

BARANOVSKIY, V.I.; LARIOMOV, O.V.; NIKITIN, M.K.; TKACHENKO, A.A.

Natural neutron activity of arsenic and antimony. Vest.LGU 14
no.10:25-26 '59. (MIRA 12:6)
(Arsenic--Isotopes) (Antimony--Isotopes)
(Neutrons)

83502

S/048/60/024/007/001/011

B019/B060

24.6600

AUTHORS: Bashilov, A. A. (Deceased), Larionov, O. V., Nikitin,
M. K., Smirnov, V. B.

TITLE: Eu¹⁴⁵ Production in Ta Spallation Reactions /9

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960,
Vol. 24, No. 7, pp. 788-790

TEXT: This is the reproduction of a lecture delivered at the 10th
All-Union Conference on Nuclear Spectroscopy held in Moscow from January
19 to 27, 1960. The authors studied the Eu¹⁴⁵ production in Ta spallation
reactions produced by 660-Mev protons. The synchrocyclotron used belonged
to the OIYaI (Joint Institute of Nuclear Research). The Eu isotopes pro-
duced in the reactions were examined with gamma rays. Six hours after the
Ta target irradiation, the rare earths were chemically separated and the
fractions of the individual rare earth elements were further separated.
The Eu fraction was purified chromatographically and was then added to a
diluted HNO₃ solution containing La³⁺ for the prevention of absorption.

Card 1/2

85585

S/048/60/024/007/018/032/XX
B019/B056

24.6720

AUTHORS:

Grigor'yev, Ye. P., Larionov, O. V., Nikitin, M. K.,
Sakharov, S. L., and Sergeyev, V. O.

TITLE:

The Determination of the Halflife of Dy^{159} , Ho^{160*} , Tu^{166}
and Lu^{173} X

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960,
Vol. 24, No. 7, pp. 841-844

TEXT: This paper was read at the 10th All-Union Conference on Nuclear Spectroscopy, which took place from January 19 to January 27, 1960 at Moscow. The isotopes investigated were obtained by the irradiation of Ta-targets with 660-Mev protons in the synchrocyclotron of the Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) and a subsequent chemical and chromatographical separation. For determining the halflife an end-window counter was used, which was protected by a Pb-shield.

As a control isotope, Dy^{159} was selected. The authors determined a half-life $T = 139 \pm 10$ days, which agrees with the data obtained by other

Card 1/2

85586

S/048/60/024/007/019/032/XX
B019/B056

24.6720

AUTHORS:

Grigor'yev, Ye. P., Larionov, O. V., Nikitin, M. K.,
Sakharov, S. L., and Sergeyev, V. O.

TITLE:

The γ -Spectra of the Isotopes of the Tantalum Fraction

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960,
Vol. 24, No. 7, pp. 845-846

TEXT: This paper was read at the 10th All-Union Conference on Nuclear Spectroscopy, which took place from January 19 to January 27, 1960 at Moscow. In the synchrocyclotron of the OIYaI, a Ta-target was irradiated with 660-Mev protons, following which, tantalum was separated and the radioactive Ta-isotopes were investigated by means of an automatic scintillation- γ -spectrometer. According to the halflife of the γ -lines, the Ta-isotopes may be subdivided into two groups. There are some isotopes with a halflife T of roughly 8 hours, and others with T = 53 hours. The energy and the relative intensities of the γ -lines of those Ta-isotopes whose T is about 8 - 11 hours, are given in Table 1;

Card 1/2

ALEKSANDROV, Yu.A.; NEMILOV, Yu.A.; NIKITIN, M.K.; PISKORZH, Sh.

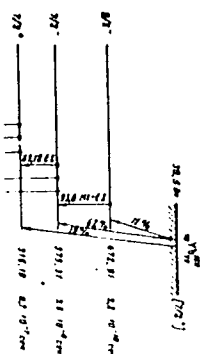
Investigating the decay scheme of Eu^{147} . Izv. AN SSSR. Ser. fiz.
24 no.9:1099-1104 S '60. (MIRA 13:9)

1. Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo
gosudarstvennogo universiteta im. A.A. Zhdanova.
(Europium--Decay)

[illegible]

5/04/89, 60, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022

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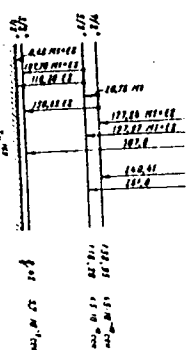


Fig. 2. Cross specimens of Yb-m-Ti₂ after melting process (4.2-91 bar) and 1510°C. The numbers show the position of the pores, 0.1 mm scale.

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Nikitin, M. K.

82517

S/020/60/133/04/10/031
B019/B060

24.6720

AUTHORS: Berlovich, E. Ye., Klement'yev, V. N., Krasnov, L. V.,
Nikitin, M. K., Yursik, I.

TITLE: New Isomeric States of Spherical Europium Nuclei With
Odd Mass Number *h*

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4,
pp. 789-792

TEXT: By way of introduction the authors refer to the investigations carried out by B. S. Dzhelepov and A. A. Bashilov (Ref. 1) into the level schemes of Eu^{147} -, Eu^{149} -, and Eu^{151} nuclei, that were determined by the spectra of internal conversion electrons and of photoelectrons. The principal part of these level schemes was studied by the authors with the coincidence method, and moreover, the lifetimes of the isomeric levels were found to be 624 kev (Eu^{147}), 496 kev (Eu^{149}), and 197 kev (Eu^{151}). A short description is given of the experimental setup consisting in the main of two scintillation spectrometers. The results are shown in three diagrams (Figs. 1, 2, and 3) in the form of the decay curves of the above-mentioned

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1087

AUTHOR: Larionov, O. V., Nikitin, M. K.

TITLE: The problem of separating rare-earths elements from tantalum

PERIODICAL: Leningradskiy Universitet. Vestnik. Seriya fiziki i khimii, no. 2, 1961, 73 - 76

TEXT: The aim of the present study was the chromatographic partition of rare-earths elements (REE) from tantalum without using a carrier, in order to obtain tantalum completely free from REE isotopes. The usual precipitation of REE as fluorides is incomplete. Furthermore, other elements, such as Hf, are coprecipitated. Thus, the separation and study of the radioactive isotopes of Hf are rendered difficult. On the assumption that REE exist in a Hf medium as cations, tantalum (as well as Hf and Zr) as anions (TaF_7^{2-} , TaF_8^{3-}) the adsorption of REE cations on cation exchangers was studied. The distribution of microquantities of Eu^{152}

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The problem of separating ...

among the Hf solution, the resins KY-2 (KU-2), and Dowex-50 was investigated. Eu¹⁵² was completely adsorbed at concentrations of 10^{-7} - 10^{-8} g/ml of 5-7 mg resin, while Ta¹⁸² was not adsorbed. Further experiments were carried out at room temperature with a chromatographic column of 2 mm diameter, filled with commercial KU-2 in the form of H⁺ (grain size, ~ 50 μ ; layer height, 3-4 mm), on plexiglass wadding. The solution was pressed through the exchanger by a mercury column. Eu¹⁵² was completely separated from the inactive Ta (concentration up to 0.35 g/ml) at a rate of one drop every 10-12 sec (1 drop ~ 1/20 ml). At a higher flow rate (one drop every 2-4 sec), up to 10% of Eu was not adsorbed by the exchanger. The presence of HNO₃ deteriorated the results. The elution curves of Fig. 2 show that concentrated HNO₃+saturated H₃BO₃ solution is the most effective eluent. The method described was successfully applied to the quantitative separation of REE isotopes from tantalum which was irradiated with

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The problem of separating ...

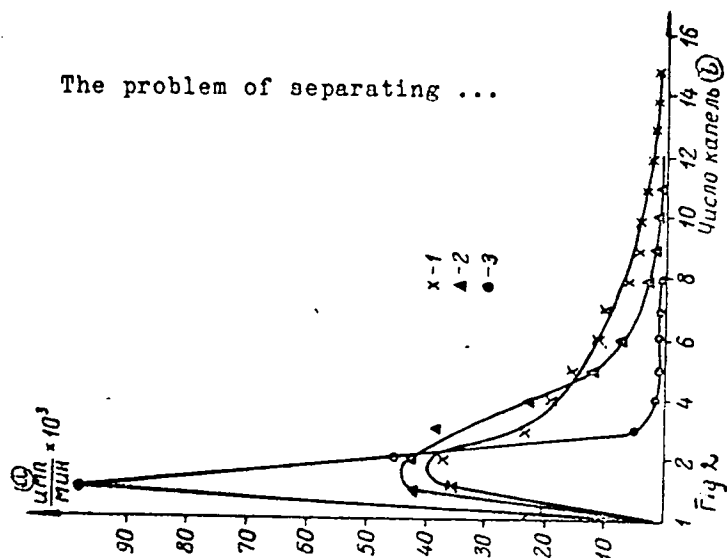
660-Mev protons. This mode of separation is more complete than that performed by the fluoride method. There are 2 figures and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc. The 3 references to English-language publications read as follows: H. J. Kettel, V. Fassel, Anal. Chem., 27, 1311, 1955; Nervik a. Seaborg, Phys. Rev., 97, 1092, 1954; H. Gest, W. H. Burgus, T. H. Davies, Radiochemical studies. The fission products. Book 1, paper 13, 1951

SUBMITTED: May, 1959

Fig. 2: Curves of REE elution. Legend: 1) HNO_3 ; 2) HCl ; 3) $\text{HNO}_3 + \text{H}_3\text{BO}_3$; a) pulses per min., b) number of drops. X

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The problem of separating ...



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Card 4/4

LARIONOV, O.V.; NIKITIN, M.K.

Separation of rare-earth elements from tantalum. Vest.LGU 16 no.10:
73-76 '61. (MIRA 14:5)

(Rare earths) (Tantalum) (Isotope separation)

S/048/61/025/002/003/016
B117/B212

AUTHORS: Berlovich, E. Ye., Klement'yev, V. N., Krasnov, L. V.,
Nikitin, M. K.

TITLE: Gamma radiation of Eu¹⁴⁶

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25,
no. 2, 1961, 207-211

TEXT: The present paper was read at the 11th Annual Conference on Nuclear Spectroscopy (Riga, January 25 to February 2, 1961). The authors have investigated gamma radiation caused by electron capture in Eu¹⁴⁶. The source was a gadolinium fraction that had been deposited chromatographically from a tantalum target. This target was bombarded with 660-Mev protons in a synchrocyclotron of the OIYaI (Joint Institute of Nuclear Research). The measurements have been made with a double coincidence scintillation spectrometer to one of whose branches a 100-channel pulse-height analyzer of the type AM-100 (AI-100) had been connected. Photomultipliers of the type ФЭУ-14 (FEU-14) with 30 by 40 mm large NaI crystals were used. A number of gamma transitions which are produced during decay of Eu¹⁴⁶ could be deter-

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Gamma radiation of Eu¹⁴⁶S/048/61/025/002/003/016
B117/B212

mined by means of this spectrometer. Energies and relative intensities of these transitions are summarized in a table. The gamma-ray intensity was determined by splitting up the spectrum according to its standard lines. The intensity of the 0.64-Mev gamma-ray quanta is, according to an estimation, almost equal to that of 0.74-Mev gamma rays. The error of analysis is about 30%. In order to avoid the summation of specially intense and coinciding quanta of 0.64 and 0.74 Mev, lead filters, 6 to 28 g cm⁻² thick, have been used to investigate the spectral region harder than 0.9 Mev. These tests confirmed a coincidence between quanta of 0.64 and 0.74 Mev (Ref. 1). Coincidences of 0.74-Mev quanta have been established with the following quanta: 0.64, 0.91, 1.07, 1.3, 1.5, 1.8, 2.1, and 2.4 Mev; also coincidences of 0.64-Mev quanta with those enumerated have been found, with the exception of 1.5 and 2.4 Mev. Besides, self-coincidences were observed which led to the assumption that a quantum with an energy of about 0.64 Mev is present. In addition, coincidences with various sections of the hard-spectrum range were investigated: 2.4, 2.1, 1.8, 1.5, 1.3, 1.1, and 0.9 Mev (Fig. 5). Based on the results obtained, the authors suggest a modified decay scheme for Eu¹⁴⁶ (Fig. 6). According to the formula of Kameron, the decay energy from Eu¹⁴⁶ to Sm¹⁴⁶ amounts to 3350 kev while according to the

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Gamma radiation of Eu^{146}

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formula of Levi it is even 3700 kev (Ref. 4). Therefrom the conclusion may be drawn that newly introduced levels with energies of up to 3.5 Mev are present. Some of the transitions which occur in coincidences are probably individual components of the groups mentioned in the table (e.g., the 1.07-Mev line from the group with energies of 1.1 Mev). Gamma quanta with energies of 280 kev have been observed which coincide with 115-120-kev quanta. These gamma rays apparently originate from a Gd^{146} or Eu^{146} decay. G. M. Gorodinskiy is mentioned. There are 6 figures, 1 table, and 4 Soviet-bloc references.

ASSOCIATION: Fiziko-tekhnicheskii institut im. A. I. Ioffe Akademii nauk SSSR (Institute of Physics and Technology imeni A. I. Ioffe of the Academy of Sciences USSR)

Fig. 5

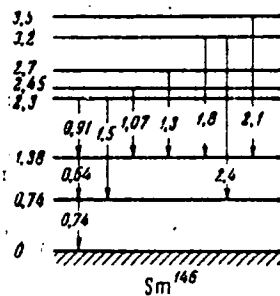
E_γ , MeV	I_γ	E_γ , MeV	I_γ
0.64	~1	1.3 (1.26+1.31)	0.10
0.74	1.00	1.5 (1.45+1.56)	0.13
0.91	0.10	1.8	0.02
1.1 (1.07+1.17)	0.14	2.1 (1.94+2.06+2.19)	0.04
		2.4	0.01

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Gamma radiation of Eu^{146}

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Fig. 6



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3/048/61/025/002/004/016
B117/B212

AUTHORS: Berlovich, Ye., Klement'yev, V. N., Krasnov, L. V.,
Nikitin, M. K.

TITLE: Study of the nuclear levels of Eu^{147} , Eu^{149} , and Eu^{151}

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25,
no. 2, 1961, 212-217

TEXT: The present paper was read at the 11th Annual Conference on Nuclear Spectroscopy (Riga, January 25 to February 2, 1961). The authors investigated level schemes of Eu^{147} , Eu^{149} , and Eu^{151} by using a double-coincidence scintillation spectrometer. Unit and method have been briefly described in Ref. 3. The radiation source was a gadolinium fraction that had been separated from a group of rare earths and had been formed in a tantalum target bombarded with 660-Mev protons in a synchrocyclotron of the OIYaI (Joint Institute of Nuclear Research). The following gamma quanta were determined for the gamma spectrum of Gd^{147} by means of the scintillation spectrometer: 230, 380 (370-396), 500, 750, 900, 1100, 1300, 1550, and 1750 Mev. For 230-keV gamma quanta prompt coincidences were established with the following

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S/048/61/025/002/004/016
B117/B212

Study of the nuclear ...

quanta: 400, 550, 620, 770, 900, 1100, 1300, and 1550 kev; 1750-kev quanta did not coincide with those quanta enumerated. There are only X-rays in the coincidence spectrum with these gamma quanta. The delayed coincidences have also been investigated and coincidences of 370 and 930-kev quanta with 230, 400, and 625-kev quanta have been found. Coincidences of the same kind with gamma rays in an energy range of from 500-600 kev yielded the same quanta of 230, 400, and 625 kev. The coincidence spectrum with 930-kev quanta is brought as an example. The results obtained agree well with the decay scheme for Gd^{147} , as suggested in Ref. 1. Due to a complicated scheme and the presence of a large number of gamma transitions with energies close to each other, which could not be separated since the resolution of the spectrometer was not strong enough, it was not possible to verify the distribution of all gamma quanta as given in Ref. 1. The following gamma quanta have been established in the Gd^{149} spectrum: 150, 300, 350, 500, 790, and 940 kev. This is in agreement with data of Ref. 1. The 150-kev gamma quanta yielded prompt coincidences with 350, 520, and 790-kev quanta. In the delayed-coincidence spectrum for 150, 350, and 500-kev gamma quanta, there are 300-kev gamma quanta but no hard quanta with an intensity more than 15% above the 300-kev line intensity. The delayed spectrum for 300-

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Study of the nuclear ...

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keV gamma quanta shows that they coincide with 150, 350, and 500-keV quanta. The above measurements proved the assumption that the 300-keV transition occurs above the isomeric level. Refs. 2 and 3 showed the presence of an isomeric level above the 175-keV transition. By analyzing the delayed-coincidence spectrum it was established that 175-keV quanta coincide with the 155-keV quanta. Delayed-coincidences have not been found with 243-keV quanta, neither at the delay of these quanta nor at the delay of the quanta of the above mentioned spectrum. All this indicates that this transition does not occur above the isomeric level. The 243-keV gamma transitions and the 175-keV transitions are not in a prompt cascade since no 243-keV quanta have been established during tests with delayed coincidences when the 155-keV quanta had been delayed and the coincidences had been recorded by means of a total spectrum. The authors state that they have been successful in finding a 108-243-keV cascade which occurs between the known 352-keV level and the ground state of Eu^{151} . The 243-keV level is introduced therefore but it is mainly occupied by K-capture in Gd^{151} . V. A. Sergiyenko is mentioned. There are 10 figures and 7 references: 5 Soviet-bloc.

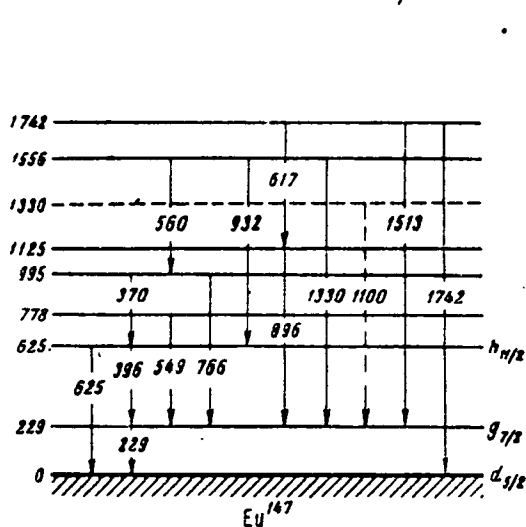
ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk
Card 3/4

Study of the nuclear ...

S/048/61/025/002/004/016
B117/B212

SSSR (Institute of Physics and Technology imeni A. F. Ioffe
of the Academy of Sciences. USSR)

Fig. 6



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ALEXANDROV, Yu.A.; NIKITIN, M.K.

Investigation of the decay chain of Eu^{145} . Izv. VSSSR.
Ser. fiz. 25 no.9:1176-1177 '61. (Index 14:8)

1. Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo
gosudarstvennogo universiteta im. A.A. Zhdanova.
(Europium—Decay)

DZHELEPOV, B.S.; ZVOL'SKIY, I.; NIKITIN, M.K.; SERGIYENKO, V.A.

Coincidences between conversion electrons of the dysprosium fraction.
Izv.AN SSSR.Ser.fiz. 25 no.10:1246-1255 0 '61. (MIRA 14:10)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova i
Ob"yedinennyy institut yadernykh issledovaniy.
(Electrons--Spectra) (Dysprosium--Decay)

BERLOVICH, E.Ye.; BONITS, M.P.; GUSEV, Yu.K.; NIKITIN, M.K.

Probabilities of one-particle transitions in Yb^{173} nuclei. Izv. AN
SSSR. Ser. fiz. 25 no.10:1275-1279 0 '61. (MIRA 14:10)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe Akademii nauk SSSR.
(Quantum theory) (Ytterbium)

BERLOVICH, E.Ye.; KLEMENT'YEV, V.N.; KRASNOV, L.V.; NIKITIN, M.K.

Gamma-transitions in the sm^{146} nucleus. Zhur. eksp. i teor. fiz.
40 no.1:375-377 Ja '61. (MIRA 14:6)

1. Leningradskiy fiziko-tekhnicheskoy institut AN SSSR.
(Gamma rays) (Samarium)

BERLOVICH, E.Ye.; BONITS, M.P.; NIKITIN, M.K.

g -Factors for collective and internal movements in Tb^{159} and Yb^{173} nuclei. Zhur.eksp.i teor.fiz. 40 no.3:749-751 Mr '61.
(MIRA 14:8)

1. Leningradskiy fiziko-tekhnicheskoy institut Akademii nauk SSSR. 2. Drezdenskiy politekhnicheskoy institut Germanskoy Demokraticheskoy Respubliki (for Bonits).
(Nuclei, Atomic) (Terbium--Isotopes)
(Ytterbium---Isotopes)

S'045,62,020 002,005,032
B101,3102

AUTHORS: Dzhelepov, B. S., Zvol'skiy, I., Nikitin, M. K., and
Sergiyenko, V. A.

TITLE: Coincidences between conversion electrons resulting from the
Dy¹⁵³ — Tb¹⁵³ decay

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
v. 26, no. 2, 1962, 202-204

TEXT: The coincidences between conversion electrons of the transitions of
80.84 + 82.48; 99.7, and 147.5 + 149.0 kev with Dy¹⁵³ electrons of
170-230 and 173.6 kev were studied (Figs. 1, 2). The Dy fraction was
chromatographically separated from a tantalum target bombarded with
660-Mev protons. The sources contained Dy¹⁵³ (T_{1/2} = 6.4 hrs); Dy¹⁵⁵
(10 hrs); Dy¹⁵⁷ (8 hrs); Dy¹⁵⁹ (144 days); Tb¹⁵³ (2.3 days); and Tb¹⁵⁵
(5 days). As the measurements with a double-lens beta-ray spectrometer
began 18 hrs after the irradiation of the Ta target and took about 15 hrs,
the short-lived Dy isotopes with A < 153 had already decayed. The Dy

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Coincidences between conversion...

S/048/62/026/002/005/032
B101/B102

preparation was precipitated onto a slightly aluminized collodion film. It is concluded from the experimental data that the 80.8-, 163.3-, and

253 3-kev levels excited in the Dy^{153} decay do exist in Tb^{153} .

Ye N. Rozhin, K. Ya Gromov, and V. A Khalkin are thanked for assistance. There are 3 figures, 1 table, and 5 Soviet references

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research). Leningradskiy gos. universitet im A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

Fig 1. Coincidences of $\text{L80.84 Dy}^{153} + \text{L82.48 Dy}^{153} + \text{L83.01 Dy}^{157}$ electrons. Broken line: spectrum of conversion electrons, recorded by one half of the spectrometer. Continuous line: count rate of coincidences.

Legend: abscissa H_e , ke cm. Ordinate: left: $N_{\text{single}} \cdot 10^{-3} \cdot \text{min}^{-1}$; right: $N_{\text{coinc}} \cdot 10^{-2} \cdot \text{hr}^{-1}$.

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Coincidences between conversion...

S/048/62/026/002/000/000
B101/B102

Fig. 2a. $N_{\text{single}} \cdot 10^{-4} \text{ min}^{-1}$ as a function of Hg .

Fig. 2b. spectrum of conversion electrons. Diagram (a): coincidences of 899.7 electrons of Dy^{153} ; diagram (b): coincidences of 180.84 + 182.48 electrons of Dy^{153} + 183.01 electrons of Dy^{157} ; diagram (c): coincidences of 1147.5 + 1149.0 + 199.7 electrons of Dy^{153} .

Legend: abscissa: Hg , oe.cm; ordinate of diagrams (a), (b), and (c): $N_{\text{coinc}} \cdot \text{hr}^{-1}$.

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L 26932-65 EWT(m) DIAAP
ACCESSION NR: AP5004190

S/0020/65/160/001/0057/0060

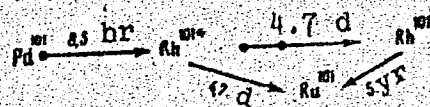
AUTHORS: Anton'yeva, N. M.; Dzhelepov, B. S. (Corresponding member
AN SSSR); Nikitin, M. K.; Smirnov, V. B. 14
13

TITLE: Investigation of the decay of Pd-101, Rh-101*, and Rh-101. 19

SOURCE: AN SSSR. Doklady, v. 160, no. 1, 1965, 57-60

TOPIC TAGS: palladium, rhodium, decay scheme, gamma transition

ABSTRACT: The decay of Pd^{101} , Rh^{101*} , and Rh^{101} , in accordance with
the scheme



Cord

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L 26932-65

ACCESSION NR: AP5004190

was investigated with the aid of a magnetic spectrometer of the "ketron" type (resolution 0.5%) with the electrons registered with the aid of scintillation gamma spectrometers: single, double (for the study of gamma-gamma coincidences), and "total absorption" spectrometer with a 70 x 70 mm NaI crystal in a barrel. The target preparation methods and the precautions taken to exclude background are described. The gamma transitions belonging to the various decays were identified and the level schemes included in the enclosures are proposed. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University)

SUBMITTED: 26Sep64

ENCL: 00

SUB CODE: NP

NR REF SOV: 002

OTHER: 004

Card

2/2

S/048/62/026/002/010/01
B'O'/B'O2

AUTHORS: Berlovich, E. Ye., Gusev, Yu. K., Il'in, V. V.,
Nikitin, V. V. and Nikitin, M. K.

TITLE: Probabilities of transitions between the lower levels of
Sm¹⁴⁷ nucleus

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya.
v. 26, no. 2, 1962, 221 - 226

TEXT: In order to clarify the quantum characteristics of the lower levels of Sm¹⁴⁷, the lifetimes of 121- and 198-keV excited states were measured with the multichannel time analyzer described in Ref. 5 (see below). The source was Eu¹⁴⁷ (T_{1/2} = 24 days) which was obtained by chromatographic separation from a tantalum target bombarded with 660-MeV protons in the synchrocyclotron of the OIYaI. Eu¹⁴⁷ was separated chromatographically after the 35-hr Gd¹⁴⁷ had decayed. A study was made of the coincidence between the 676-keV gamma quanta, the emission of

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S/C48/62/C26/002/0-0/012
B101/B102

Probabilities of transitions

which excites the 121-kev level, with the gamma quanta resulting from the discharge of this level. The gamma spectrum of Eu^{147} was recorded by means of NaI(Tl) crystals and an P34 33 (FEU 33) photomultiplier. The gamma-gamma coincidences of Eu^{147} and a comparison with the gamma-gamma coincidences of the Co^{60} reference source ($\text{Co}^{60} \rightarrow \text{Ni}^{60}$ transition) were used to calculate the lifetime of the 121-kev level:

$T_{1/2} = (3.3 \pm 0.3) \cdot 10^{-10}$ sec. The coincidence of 600-kev gamma quanta with the conversion electrons of the 198-kev transition was examined at the 198-kev level. The gamma quanta were recorded by means of a NaI(Tl) crystal. The right-hand branch of the coincidence curve had a pronounced exponential course. It was found that $T_{1/2} = (3.3 \pm 0.3) \cdot 10^{-10}$ sec.

These results can be brought into agreement with the sequence $11/2^- \rightarrow 3/2^-$ for the ground state and for the first two excited states. Since the 198-kev transition is a pure E2 transition which excludes the sequence $7/2^- \rightarrow 9/2^- \rightarrow 5/2^-$ there must be a prohibition which suppressed

Card 2/6

Probabilities of transitions...

S/048/62/026/002/010/035
B101/B102

the M1 component. The results exclude a lifetime of the 121-kev γ transition in the microsecond range. There are 5 figures and 12 references: 10 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: Ref. 5: Bonitz, M., Berlovich, E., Nucl. Instr. and Methods, 2, 13 (1961); Bay, Z., Phys. Rev., 77, 419 (1950).

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR)

Card 3/4

NIKITIN, M.K.

S/056/62/C42/CC4/CC7/0*7
B102/B104

AUTHORS: Berlovich, E. Ye., Gusev, Yu. K., Il'in, V. V., Nikitin,
V. V., Nikitin, M. K.

TITLE: Contribution of collective motion to the lifting of the
1-forbiddance

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42,
no. 4, 1962, 967-972

TEXT: Continuing earlier studies (DAN SSSR, 133, 789, 1960; Nucl. Phys.
23, 481, 1961), the authors determined the lifetimes of the $M1$ transitions
of the type $g_{7/2} \rightarrow d_{5/2}$ for the spherical nuclei $Eu^{147,149,151}$ just before
the range of great deformations, where the collective motion is strongest.
It can be assumed that collective motion affects the probability of
1-forbidden transitions if the number of neutrons is below the critical
($N = 69$) and the nucleus is still spherical. The experiments were made
with Cd fractions of Ta targets irradiated with 660-Mev protons in the
synchrocyclotron of the OIYaI, a multi-channel time analyzer, a
scintillation spectrometer with NaI-crystal and an $\Phi 3Y-33$ (FEU-33)
Card 1/2

S/056/62/042/004/007/037
B102/B104

Contribution of collective ...

multiplier. Results: Eu^{147} , first excited level 229.5 keV ($g_{7/2}$), lifetime $(1.8 \pm 0.2) \cdot 10^{-10}$ sec; M1 transition to ground state ($d_{5/2}$), delay factor $F = 115$; total internal-conversion coefficient $\alpha = 0.19\%$. Eu^{149} , first excited level 150 keV ($g_{7/2}$), lifetime $(3.2 \pm 0.2) \cdot 10^{-10}$ sec; M1 transition to the ground state ($d_{5/2}$), $F = 78$; $\alpha = 0.63$. Eu^{151} , first excited level 21.7 keV ($g_{7/2}$), lifetime $(3.4 \pm 0.2) \cdot 10^{-9}$ sec; M1 transition to ground state ($d_{5/2}$), $F = 47$; $\alpha = 29.1$. The low values of the F -factors and their smooth decrease when approaching the range of deformed nuclei, in the nuclear range considered, indicate an increasing contribution of collective motion in the real nuclear wave functions, leading to progressive weakening of the l -forbiddance. There are 4 figures and 1 table.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskii institut Akademii nauk SSSR (Leningrad Physicotechnical Institute of the Academy of Sciences USSR)

SUBMITTED: November 11, 1961
Card 2/2

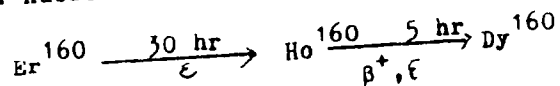
S/056/62/043/005/010/058
B102/B104

AUTHORS: Berlovich, E. Ye., Gusev, Yu. K., Il'in, V. V.,
Nikitin, M. K.

TITLE: Lifetimes of the excited states of deformed Dy¹⁶⁰, Lu¹⁷⁵,
Hf¹⁷⁷, and Ir¹⁹¹ nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
no. 5(11), 1962, 1625-1635

TEXT: A time - pulse-height converter and a differential time analyzer
with variable delay line were used to study the lifetimes of some excited
states of deformed nuclei. For Dy¹⁶⁰ the decay curves of



were used to calculate the lifetimes of the first excited states by the
method of least squares. Results:

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Lifetimes of the excited states of ...

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B102/B104

86.5 keV (2^+) : $T_{1/2} = (1.7 \pm 0.1) \cdot 10^{-9}$ sec; E2 transition to ground state (0^+);
283 keV (4^+) : $T_{1/2} = (7.1 \pm 0.9) \cdot 10^{-11}$ sec; E2 transition to first level;
966 keV (2^+) : $T_{1/2} \leq 7 \cdot 10^{-12}$ sec; E2 transition to the ground state.

The lifetimes of the first and third excited states of Hf^{177} were determined from the β^- decay of Lu^{177} (6.8 d). Results:

113 keV ($9/2^-$): $T_{1/2} = (4.2 \pm 0.3) \cdot 10^{-10}$ sec; transition to ground state ($7/2^-$)

321 keV ($9/2^+$): $T_{1/2} = (6.9 \pm 0.3) \cdot 10^{-10}$ sec; transitions to ground state, first, and second (250 keV, $11/2^-$) excited states. The lifetimes of the first and third excited states of Lu^{175} were determined from the β^- decay of Yb^{175} (6.8 d). Results:

114 keV ($9/2^+$): $T_{1/2} = (1.1 \pm 0.1) \cdot 10^{-10}$ sec; (M1+E2) transition to ground state

396 keV ($9/2^-$): $T_{1/2} = (3.25 \pm 0.10) \cdot 10^{-9}$ sec; (E1+M2) transitions to ground

Card 2/5

Lifetimes of the excited states of ...

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state ($3/2^+$) and to the first excited level and E1 transition to the second level (251.5 keV, $11/2^+$). The lifetime of the first excited level of Ir^{191} , 129.6 keV ($5/2^+$), was determined in β -decay of Os^{191} (15 d), and found to equal $(8.1 \pm 1.6) \cdot 10^{-11}$ sec. This value agrees with data from the Mössbauer effect. The results are compared with the predictions of the generalized nuclear model of Bohr-Mottelson and some nuclear parameters are calculated. For the internal quadrupole moment of the band, calculated from the lifetimes of the first and second rotational level of Dy^{160} , the values $(8.0 \pm 0.5) \cdot 10^{-24} \text{ cm}^2$ and $(8.5 \pm 1.1) \cdot 10^{-24} \text{ cm}^2$ were obtained which agree within the error limits. $B(E2; 4 \rightarrow 2)/B(E2; 2 \rightarrow 0) = 1.68 \pm 0.17$. The empirical transition probabilities for the Hf^{177} levels being

$$W_{\gamma 321} = 2,6 \cdot 10^7 \text{ cek}^{-1}, \quad W_{\gamma 208} = 8,5 \cdot 10^8 \text{ cek}^{-1}, \quad W_{\gamma 72} = 5,7 \cdot 10^7 \text{ cek}^{-1}.$$

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Lifetimes of the excited states of ...

S/056/62/043/005/010/058
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and the theoretical values calculated with Nilssons formula (Kgl. Danske Vid. Selskab. Mat.-Fys. Medd., 29, 16, 1955) being

$$W_{H321} = 1,67 \cdot 10^{10}, \quad W_{H208} = 1,04 \cdot 10^9, \quad W_{H72} = 1,15 \cdot 10^7.$$

the retardation factors are obtained as

$$f_{H321} = 650, \quad f_{H208} = 1,13, \quad f_{H72} = 1,54.$$

The corresponding quantities for Lu^{175} are

$$W_{\gamma316} = 1,2 \cdot 10^8, \quad W_{\gamma208} = 5,7 \cdot 10^9, \quad W_{\gamma148} = 8 \cdot 10^8,$$

$$W_{H316} = 1,18 \cdot 10^{10}, \quad W_{H282} = 9,76 \cdot 10^8, \quad W_{H148} = 1,32 \cdot 10^7.$$

$$f_{H316} = 105, \quad f_{H282} = 17, \quad f_{H148} = 1,6.$$

The table gives among others the g-factors of collective (g_R) and internal (g_K) motion, and μ in nuclear magnetons. There are 9 figures and 1 table.

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Lifetimes of the excited states of ...

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B102/B104

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii
nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of
the Academy of Sciences USSR)

SUBMITTED: June 9, 1962

	E_γ , keV	$B^2 = \frac{E^2}{M^2}$	$Q_\alpha \cdot 10^{-14}$ cm ²	μ , g m.	$B(M1)$, (eh/2Mc) ²	ϵ_R	ϵ_K
Hf ¹⁷⁷	113	34	7,76	+0,61	$5,2 \cdot 10^{-4}$	0,20	+0,17
Lu ¹⁷⁵	113,83	0,25	7,45	+2,0	$6,67 \cdot 10^{-4}$	0,29	+0,65
Ir ¹⁹¹	129,6	0,14	4,25	+0,17	$4,8 \cdot 10^{-4}$	0,46	-0,12

Table

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L 11050-63

EWI(m)/BDS--AFFTC/ASD--DM

ACCESSION NR: AP3001184

S/0089/63/014/005/0493/0494

53

AUTHOR: Nikitin, M. E.; Katykhin, G. S.

TITLE: Study of ion exchange in solutions of hydrofluoric acid. Separation of RaD, RaE, and polonium

SOURCE: Atomnaya energiya, v. 14, no. 5, 1963, 493-494

TOPIC TAGS: ion exchange, hydrofluoric acid, RaD, RaE, polonium, separation of radioactive elements

ABSTRACT: By using the method described by K. Kraus and F. Nelson (Chemistry of nuclear fuels, Goskhimizdat, 1956, page 353), the authors have determined the distribution coefficients (in equilibrium) of K sub d - lead (RaD) and bismuth (RaE) in the AV-17xl4 anionite. The results are presented in a diagram. Based on information thus obtained, the authors suggest a method of separation of RaD, RaE and polonium. It consists of using an ion exchange column, with a subsequent analysis of the Beta spectra of the obtained specimens, using a Beta spectrometer with acceleration and magnetic lens. Orig. art. has: 2 figures.

ASSOCIATION: none

Card 1/2

S/032/63/029/001/007/022
B104/B186

AUTHORS: Baluka, M., Baranovskiy, V. I., and Nikitin, M. K.

TITLE: Dissolution of metallic Rh and Ir and their alloys

PERIODICAL: Zavodskaya laboratoriya, v. 29, no. 1, 1963, 35

TEXT: A method of dissolving Rh and Ir and their alloys was developed (cf. G. H. Faye and W. R. Inman (Talanta, 3, 3, 277 (1960))). It is based on melting the metal with an excess of tin in the presence of ammonium chloride. The powdered metal is melted with a 100- to 1000-fold excess of tin at a temperature of 300 to 500°C for 50 minutes. To avoid the formation of a tin oxide film, ammonium chloride is repeatedly added. Melting and casting is carried out in a quartz or porcelain container. The ingots obtained are dissolved by heating in a crucible containing concentrated hydrochloric acid. If the process of dissolution is slow the melting process should be continued for another 20 or 30 minutes. The heavy powdery precipitation forming an alloy of tin with Ir or Rh is dissolved in a small quantity of aqua regia after washing with hydrochloric acid and water, the dissolved tin is removed from 6N HCl by repeated

Card 1/2

S/032/63/029/001/007/022

Dissolution of metallic Rn and Ir and ... B104/B186

extraction with ether. The extraction of tin by hydrochloric acid is accompanied by dissolution of ~1% of Ir (Rh). The dissolving time is about 2 hrs.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet
(Leningrad State University)

Card 2/2

3/056/63/044/001/006/067
B108/B180

AUTHORS: Badalov, N. B., Vasilenko, S. S., Kaganskiy, M. G.,
Kaminskiy, D. L., Nikitin, M. K.

TITLE: Positron decay of Re^{182}

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,
no. 1, 1963, 35 - 40

TEXT: Two rhenium isomers with the half lives of 13 and 64 hr were obtained in the reaction $\text{Ta}^{181}(\alpha, 3n)\text{Re}^{182}$ after chemical processing (purification) of the reaction product. These two isomers show positron emission during their $\text{Re}^{182} \rightarrow \text{W}^{182}$ decay, with intensities of $\sim 3 \cdot 10^{-3}$ and $5 \cdot 10^{-6}$ positrons per decay event, for the short and long-lived isomer, respectively. Analysis of the β -spectrum of the short-lived isomer by means of a Fermi graph showed two branches of β^+ -decay with threshold energies of 550 ± 20 kev and 1740 ± 20 kev and the relative intensities of $0.6 \cdot 10^{-3}$ and $1.8 \cdot 10^{-3}$ positrons per decay event. The total energy of the $\text{Re}^{182} \rightarrow \text{W}^{182}$ transition is 2860 ± 20 kev. The positrons are due mainly to internal

Card 1/2

Positron decay of Re^{182}

8/056/63/044/001/006/067
B108/B180

conversion with pair production during the electromagnetic transitions accompanying the electron capture in Re^{182} . The low β^+ -decay intensity of the long-lived isomer is attributed to K-forbiddenness. There are 5 figures. ✓

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR)

SUBMITTED: June 29, 1962

Card 2/2

NIKITIN, M.K.

Ion exchange in HF solutions. Group separation of elements by
means of ion exchange resins. Dokl. AN SSSR 148 no.3:595-597
Ja '63. (MIRA 1642)

1. Leningradskiy gosudarstvennyy universitet im. A.A. Zhdanova.
Predstavleno akademikom A.P. Vinogradovym.
(Hydrofluoric acid) (Ion exchange resins)

ANTON'YEVA, N. M.; NIKITIN, M. K.; SMIRNOV, V. B.

"Investigations of the Decay Scheme of Pd^{100} ."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22
Feb 64.

NIFI LGU (Sci Res Inst Physics, Leningrad State Univ)

ANTON'YEVA, N. M.; NIKITIN, M. K.; SMIRNOV, V. P.

"Radiations of Rh¹⁰⁰."

"Radiations of Pd¹⁰¹."

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